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July 28, 1997

AUG 05 1997

Lester A. Snow, Executive Director
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814


Dear Mr. Snow:

I am writing to express my support for the Marin Audubon Society's application for CALFED Category III funding to be used for marsh enhancement at Rush Creek and Cemetery Marshes, Burdell Island and the Redwood Landfill Marsh.

As I understand, funding from CALFED would allow for removal of sediment in the marsh channels in Rush Creek and Cemetery Marshes, thereby improving circulation and water quality in these marshes. It would also provide for the protection and restoration of Burdell Island and Redwood Landfill Marsh.

The Marin Audubon Society has an excellent history of other wetlands restoration projects it has overseen. Thank you for your careful consideration of their application for funding.

Sincerely,


Lynn Woolsey
Member of Congress

LW:tf

Executive Summary

a. Project Title: Rush Creek Marsh and Cemetery Marshes Restoration Project

Applicant: Marin Audubon Society (MAS)
Questa Engineering Company (QEC)

b. Project Description and Primary Biological/Ecological Objectives:

The project will enhance water circulation and habitat in Rush Creek and Cemetery Marshes by excavating channels and installing slide/flap gates on existing culverts. The California Department of Fish and Game owns the 230-acre Rush Creek Marsh, and the Marin County Open Space District owns the 75-acre Cemetery Marsh. Both are diked, managed wetlands on Black John Slough, a tributary of the Petaluma River. Benefits will accrue to many species of fish, all runs of Chinook Salmon, Steelhead Trout, Sacramento Splittail, and Striped Bass by removing barriers to their movement. The project will enhance perennial aquatic habitat for migratory waterfowl and shorebirds and benefit special status species.

The project is part of a broad effort by Marin environmental organizations and property owners to permanently protect, enhance and/or restore diked historic baylands and tidal marshes along San Francisco and San Pablo Bays. These wetland resources are essential to the preservation and enhancement of the Bay and Estuary.

c. Approach/Tasks/Schedule:

The site is in Marin County north of the City of Novato. The project was developed by Questa Engineering Company and has been reviewed by regulatory and managing agencies, adjacent property owners and engineering consultants. The project will improve circulation in the marsh by removing two existing tide gates and installing slide/flap gates on existing culverts and excavating channels to remove accumulated sediment. This is the alternative determined to be the most cost effective and to provide the most benefits with least impact. Replacing the tide gates (which allow water to enter and leave the marshes only at very high tides) with slide/flap gates will enable tidal water to flow into and out of the marshes during lower tides. The gates will be closed during the rainy season to prevent water from entering the marshes, thus avoiding flooding of the adjacent agricultural lands. Improving circulation will enhance water quality and reduce odors.

The schedule calls for submission of permit applications by October, 1997, completion of environmental review by April 1998, and completion of construction by October 15, 1998.

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d. Justification for Project and Funding by CALFED:

The project addresses other concerns of CALFED, including contributing to species diversity in the lower Petaluma River, and will improve water quality in tidal marshes.

e. Budget Costs and Third Party Impacts:

The request from CALFED is for \$91,0000 for removal of 3,300 cubic yards of silt from 10,000 linear feet of channels within the marshes, and for post-project monitoring. Funds have been received or approved for all of the project components from in-lieu of Administrative Civil Liability fines through the Regional Water Quality Control Board (RWQCB), the Marin County Open Space District, the Marin County Department of Public Works, the Wildlife Conservation Board, the Marin Community Foundation and the State Coastal Conservancy (SCC).

MAS will contribute in-kind administrative services and will charge no overhead, administrative or other costs. QEC will contribute in-kind project design and supervision services. The State Coastal Conservancy will be the lead agency for environmental review.

The Project will have many benefits for third parties. Improvement of water quality will reduce odor and mosquito problems for nearby communities. The management plan will ensure that the water level does not flood the adjacent dairy ranch land. The project will enhance an existing public access trail along the base of the hill and the marsh edge by increasing wildlife diversity and improving water quality.

f. Applicant Qualifications:

Over the last eight years, with grants from various agencies and the Marin Community Foundation, MAS has successfully completed four marsh restoration/enhancement projects involving removal of fill and restoration of tidal marshes. QEC has over 20 years of experience in environmental restoration and management including many tidal marsh restorations.

g. Monitoring and Data Evaluation:

A five year Monitoring Program will be implemented following completion of the restoration project. The monitoring will measure at least the following: water quality, vegetation, fish and bird use.

h. Local Support/Coordination with other Programs/Compatibility with CALFED Objectives:

The project complies with applicable plans for the area. The Department of Fish and Game, which will own the marsh, supports the project as does the County of Marin. The project will advance the CALFED objective of restoring tidal and seasonal wetlands for the support of fish and other wildlife.

II.

- a. Project Title: RUSH CREEK/CEMETERY MARSH ENHANCEMENT PROJECT
- b. Applicant: Marin Audubon Society (MAS) - Lead Applicant
48 Ardmore Rd.
Larkspur, CA 94939
(415) 924-6057/fax (415) 927-3533

Questa Engineering Corporation (QEC)
1220 Brickyard Cove Rd., Suite 206
P.O. 70356
Point Richmond, CA 94807-0356
(510) 236-6114
Fax (510) 236-2423
- c. MAS Non-profit 502 (c)(3) organization
- d. MAS Tax ID number: 94-6076664
- e. Contact Person:

MAS - Barbara Salzman, address and phone same as above
- f. Collaborators: CA Department of Fish and Game, Marin County Open Space District, Marin County Public Works Department, State Coastal Conservancy, Marin/Sonoma Mosquito Abatement District; San Francisco Bay Regional Water Quality Control Board, Marin Community Foundation, San Francisco Bay Joint Venture, Sierra Club Marin Group, Environmental Forum of Marin, Marin Conservation League, Marin Baylands Advocates
- g. RFP Group Type: Group 1: Public Works/Construction

Letters of support attached

III. Project Description

a. Project Description and Approach

The project will enhance habitat values, circulation within and water flow into and out of Rush Creek and Cemetery Marshes, by replacing two flap gates with slide/flap gates on existing culverts to Rush Creek Marsh and to Cemetery Marsh, and by excavating channels in both marshes.

The project will solve long-standing water quality and habitat degradation in these important marshes through a partnership among local governments, state agencies, special districts, and for-profit organizations, developers, a private foundation and non-profit organizations. These entities have come together in a collaborative effort to implement this project.

The 230-acre Rush Creek Marsh and the approximately 75-acre Cemetery Marsh are managed wetlands receiving inflow from Basalt and Rush Creeks, and from the Petaluma River via Black John Slough. Both marshes are diked. Water enters and exits only through tide gates. Rush Creek Marsh is owned by the California Department of Fish and Game and Cemetery Marsh is owned by the Marin County Open Space District.

This project is part of a broad effort by Marin County environmental organizations and property owners to permanently protect, enhance and restore diked historic baylands and tidal marshes along San Pablo and San Francisco Bays. Permanent protection, enhancement and/or restoration of these resources is essential for the preservation and enhancement of the Bay and Estuary.

b. Location and Geographic Boundaries

Rush Creek and Cemetery Marshes are located in Marin County, north of the City of Novato, in the Petaluma River watershed, on Black John Slough, a tributary of the Petaluma River. The marshes are adjacent to each other with Cemetery Marsh, the easternmost. They are bounded on the north by privately owned diked baylands that are used for grazing dairy cows, and on the south by oak woodlands owned by the Marin County Open Space District. The western boundary is Binford Road, a frontage road, and Highway 101.

Adjacent and other sites in the lower Petaluma River watershed are the subject of another MAS application to CALFED. A 424-unit residential project is in the final stages of CEQA review by the City of Novato for the 300-acre diked wetland and oak woodlands bordering Cemetery marsh to the east.

c. Expected Benefits

The project will support and address the CALFED priority action of enhancing existing tidal and non-tidal perennial aquatic

habitats, and CALFED goals and processes to restore ecosystem health and provide high quality aquatic habitat for fish and wildlife dependent on the Bay-Delta. The project will enhance perennial aquatic habitat for migratory waterfowl and shorebirds, and reduce barriers to fish species of concern. It will also benefit special status species.

Fish Benefits: The area surrounding the mouth of the Petaluma River, where these marshes are located, is habitat for a number of fish species of concern to CALFED: Steelhead Trout, Winter-run, Spring-run and other runs of Salmon, Sacramento Splittail, and Striped Bass. Young Salmon and Steelhead use the marshes near the mouth of the river as nurseries to forage, rest and hide from predators on their way to the ocean. Steelhead spawn upstream in the Petaluma River and use marsh channels in the brackish-water, lower reaches of the river as rearing habitat or nurseries. These species would benefit from the project as would the native Green Sturgeon and native Tule Perch, and the non-native American Shad and Striped Bass.

Converting the existing gates to combination flap/slide gates will remove a barrier to fish movement, reduce habitat fragmentation, enhance the survival of fish that enter the diked marsh, and eliminate or significantly reduce fish mortality. Unlike the existing gates, slide/flap gates can be set to have a desired opening which will facilitate passage of fish. The slide/flap gates will be opened to allow tidal flows in and out during the summer, fish will be able to move out of the marsh more freely. In winter the tide gate opening would be closed to prevent flooding of adjacent properties.

Excavation of the channels will enhance habitat within the marshes by improving water flow and eliminating areas of isolated ponds that now occur in summer. Now, summer water levels in the marshes are low and water becomes trapped in isolated ponds due to limited tidal range and sedimentation of the channels. During the late summer, evaporation rates exceed tidal inflow and the water becomes hypersaline. As water warms, algae growth proliferates with resultant die-offs, oxygen depletion and the loss of any fish that are in the isolated ponds.

Eliminating channel blockages, along with expanding the currently inadequate flows into, through and out of the marshes, will improve water quality. This also will have habitat benefits beyond these two marshes. Water flowing from these marshes into Black John Slough, the Petaluma River and the Bay, will have higher levels of dissolved oxygen; therefore, more small fish, plankton and other nutrients will be exported. The increased fish and invertebrate survival will be an increased food source for fish, birds and other wildlife using the Petaluma River, San Pablo Bay and estuary habitats.

Benefits for Migratory Birds: These marshes are important habitat for migratory waterfowl and shorebirds, and use by these populations is expected to increase as a result of the project.

Shallow perennial wetlands like these provide invaluable habitat for shorebirds that return to the Estuary before the rainy season, when wetland habitats are limited. Marshes like these also have high habitat value for migratory shorebirds and waterfowl because they provide shallow water refugia habitat when tidal marshes are covered with deeper water. The large expanses of unvegetated, mudflat and shallow-flooded wetlands on these sites allow for large flocks of roosting shorebirds to have a wide view of approaching predators, and enhances their ability to escape predation.

Foraging habitat will improve because fish and invertebrate populations will increase. Increased use for high tide resting and foraging by shorebirds: Long-billed Curlew, Dunlin, Dowitcher, Least and Western Sandpiper; and by waterfowl: Northern Pintail, American Widgeon, Northern Shoveler, Mallard, Gadwall, Green-winged and Cinnamon Teal, is expected. The Neotropical migratory songbirds that use the adjacent oak woodlands guild will also benefit from improved water source and the more abundant food base resulting from improved water quality conditions.

Special Status Species: The Black John Slough-Petaluma Marsh Area has high populations of special status species, endangered Clapper Rail, Salt Marsh Harvest Mouse, and the federal species of concern Black Rail, San Pablo Bay Song Sparrow and Salt Marsh Yellowthroat. Black Rail population estimates for the Black John Slough area are as high as 1,461 birds. Brackish characteristics of the marshes in the lower Petaluma River likely contribute to the high concentrations of these species. The Salt Marsh Yellowthroat population at Black John Slough was estimated as being 11 breeding pair (San Francisco Bay Bird Observatory, 1986). Improved water quality and prey items will benefit all these special status species.

Other Ecosystem Benefits: The project will address other stressors of concern to CALFED. The marsh restoration will enhance habitat and contribute to species richness and diversity in the lower Petaluma River. The project enhancement will improve food chain support. Nutrients from the restored marshes will contribute to productivity within the marsh and will be exported to support invertebrates and fish in the River, mudflats and open waters of the Bay. This also will benefit migratory diving birds and waterfowl such as Grebe, Canvasback and Scaup.

d. Background and Biological/Technical Justification

Until approximately 100 years ago, Rush Creek Marsh and Cemetery marshes were part of a continuous band of marshes along the Petaluma River. Almost all the marsh plains were diked for agricultural use in the 1920's.

This project is a sound approach to a long-standing problem. It was developed by the engineering firm of QEC, co-applicant for this project, and has received extensive review by regulatory and

managing agencies, adjacent property owners and engineering consultants. Installation of the slide/flap gates was recommended by QEC. Similar enhancement and analyses of other alternatives were recommended by consultants. A 1985 study by hydrologic consultants, Philip Williams and Associates, addressed four alternatives for enhancement of these marshes.

The project was initiated at this time by the contribution of in-lieu of Administrative Civil Liability (ACL) fines administered by the RWQCB for water quality violations at the nearby Rush Creek development project and at another site nearby on the Petaluma River. The consensus of the managing and interested agencies RWQCB, CA Department of Fish and Game, County of Marin, Marin/Sonoma Mosquito Abatement District, SCC that improved circulation in the marsh would be better ensured if the channels within the marshes were excavated to remove accumulated sediment that is blocking water flow. As a result, an excavation component was added to the plan. This project was determined to be the most feasible and the most cost effective, and to provide the most environmental benefits with least impacts.

To improve circulation the existing tide gates on the 60" culvert to Rush Creek Marsh and the 36" culvert to Cemetery marsh will be changed to combination slide/flap gates to enable tidal water to flow into the marshes at all tides, and to flow out at lower tides. The existing tide gates are located high in the dike separating the marshes from Black John Slough. Consequently, they allow water to enter the marshes only during very high tides and to flow out only at a fairly high elevation in summer.

With the slide/flap gates, water will still be able to leave the marsh through the other three smaller tide gates. The slide/flap gates which will be set and fixed for summer and winter operation, and will be closed during the rainy season to prevent water from entering while allowing water to flow out. This will prevent flooding of the adjacent agricultural lands from too high water levels in the marshes.

In addition, internal marsh channels have become clogged with sediment and are in need of excavation to allow tidal waters to circulate through the marshes, and to increase mixing and turn-over. In addition, drainage outflow will be improved. This will correct excessive algal blooms and die-offs, which have caused odor complaints from neighbors and users of Highway 101. The poor circulation has also resulted in the production of mosquitos. Mosquito production is likely to become an increasing concern if the project is not implemented because of the new developments being constructed closer to the marshes.

On the ground surveys have determined that 10,000 linear feet of internal marsh channels have become silted in and are in need of excavation. This will require removal of approximately 3,300 cubic yards of silt. The sediments will be removed by a rotary ditcher attached to an amphibious crane. This crane moves on the marsh without damaging the vegetation or the substrate. The

attached rotary ditcher will excavate the ditches and disburse the material up to 100 feet by blowing it outward. This process distributes the material in the marsh at a depth of less than eight inches which does not constitute fill because it does not cover or otherwise impact wetland vegetation or alter hydrologic functions.

The project is a sound technical approach based on hydrological modeling, engineering expertise and practical experience. In order to determine the sections of channel needing excavation, QEC has field-surveyed the marsh and developed a base map; aerial photos have been donated by Caltrans. Hydraulic analyses will be conducted within the next several months, and a Water Management Plan will be prepared involving property owners, Mosquito Abatement, and community and agency wildlife interests. After construction, the gates will be calibrated.

Under requirements of the RWQCB, the slide/flap gates must be installed by December of 1998. To avoid problems of working in wet mud, the project will be implemented before the rainy season of 1998. If we do not have sufficient funding to implement the excavation component, we will have to do that later when funding becomes available.

e. Proposed Scope of Work

The items in Scope of Work for CALFED funding are:

- excavation of channels in the Rush Creek and Cemetery Marshes.
- monitoring of the enhanced marsh.

All other tasks needed to complete the project have been funded. These include: on-the-ground surveys, preparation of topographic map, hydrologic analysis, engineering drawings, permit applications, preparation of a Management Plan to operate the slide/flap gates, acquisition and installation of the gates, and calibration of the slide/flap gates. Surveys, hydraulic analysis, and mapping have been completed. Preparation of engineering drawings and the permit applications are about to be begin.

f. Monitoring and Data Evaluation

A five-year monitoring program will be developed and implemented after implementation of the enhancement project. Monitoring objectives and indicators will be identified to measure the success of the project in restoring tidal marsh and increasing fish and bird habitat. The monitoring plan will measure at least the following: water quality (algal biomass, and salinity), fish and bird use. MAS will provide qualified volunteers to complete bird survey monitoring.

If a monitoring program is developed for the North Bay by the San Francisco Estuary Institute, we would be prepared to participate

in that overall monitoring effort. This may necessitate a modification of costs.

g. Implementability

The project is the result of extensive hydrologic and biological study of the marshes. Improvement of circulation in these marshes has been for many years a high priority of owners of the marshes and for the Department of Fish and Game and the County of Marin. Outreach efforts have included communication with the dairy rancher to the north who will be encouraged to have input into the Management Plan.

There is no conflict with laws, regulations, or plans for the Area. The Marin Countywide Plan contains many policies addressing protection, restoration and enhancement of wetlands and the Bay, protection of migratory and special status species, all of which support implementation of the project. The project also supports and is supported by goals, objectives and actions of the Estuary Projects Comprehensive Conservation and Management Plan. Protect and manage existing wetlands, enhance ecological productivity, encourage geographically focused cooperative efforts to protect wetlands, restore habitats critical to the survival of wildlife populations, and enhance biodiversity.

The State Coastal Conservancy will be the lead agency for environmental review. An Initial Study will be prepared.

Permits from the Bay Conservation and Development Commission, Regional Water Quality Control Board and Army Corps of Engineers will be required. Applications will be submitted by October 1, 1997.

A Management Plan for the gates will be developed based on habitat goals and prevention of flooding of adjacent lands. All interested property owners, agencies, and individuals representing wildlife interests will participate in establishment of the goals for the management of the marshes. The Management Plan will accommodate variations in climatic and hydrologic conditions. The Marin/Sonoma Mosquito Abatement District will continue to manage the gates.

There are no known cultural resources or hazardous materials on the sites.

IV. Costs

a. Budget Request with this Application

This application requests \$91,000 to excavate silted channels within the marshes. Funds have been received or approved for all other project components. The funds requested from CALFED will be needed by Summer 1998 when the project will be implemented.

The requested funding and the tasks for which it is requested are:

Excavation of 10,000 linear feet or approximately 3,300 cubic yards of material.....	\$70,000
Post-project Monitoring.....	21,000
TOTAL AMOUNT REQUESTED FROM CALFED.....	\$ 91,000

The following funds have been obtained or committed:

In-lieu of ACL fines from two private developers (one adjacent to the south of the project site) through the RWQCB to purchase and install the two (2) slide/flap gates and to conduct pre-project engineering studies,	\$ 63,000
From the Marin County Open Space District,	5,000
From the Marin County Department of Public Works,	5,000
From the Wildlife Conservation Board for permits, and installation of the tide gates;	5,000
From the Marin Community foundation for mapping, engineering drawings, preparation of water management plan and tide gate calibration.	8,500
From the SCC for hydrologic analysis	2,500

TOTAL ALREADY RECEIVED	\$ 85,000

MAS is a volunteer organization with no staff or office. MAS charges no overhead or fees for service for restoration projects. MAS will contribute the following in-kind Services to this project: overall project coordination, preparation and implementation; regulatory permits; development of management goals and Management Plan; environmental review, outreach, contract development, and construction supervision.

QEC will contribute the following in-kind services: coordination, assistance with identification of management goals, design drawings/specifications, and construction supervision.

Cooper Crane and Rigging (CCR) is a sole source contractor for this project. CCR is the only contractor in the region with equipment that will ensure the project is implemented in the least environmentally damaging and most cost effective manner. The equipment is an amphibious crane with a rotary ditcher which moves on the marsh without damaging the marsh vegetation. The

rotary ditcher attachment excavates a ditch and disburses the material up to 100 feet in both directions at a depth of less than eight inches, thereby avoiding filling of the marsh. This method will also avoid haul-out and disposal costs.

b. Schedule Milestones

Permits applications will be submitted by October, 1997.
Complete environmental review April 1998.
Obtain permits by June 1998.
Project construction will begin in August 1998.
Complete construction by October 15, 1998.

c. Third Party Impacts

The project will have many benefits to third parties. Improvement of the water quality will reduce odor problems for nearby communities and users of adjacent lands because algae growth will be avoided or significantly reduced.

The Management Plan will ensure that the water level does not threaten flooding of the adjacent property owner.

The elimination or significant reduction of mosquito production also will benefit members of adjacent and nearby communities as well as the Mosquito Abatement District.

A public access trail owned by the Marin County Open Space District extends along the base of the hills providing a scenic route through varied wetland and oak woodland habitats. The trail is enjoyed by birders, hikers, joggers and horseback riders. The project will enhance the experience of recreational users by increasing wildlife diversity, and eliminating undesirable seasonal odors and mosquitoes.

V. Applicant Qualifications

MAS will manage the project and will provide services identified in section IV. c. above including bidding, if necessary, contracting, coordination and construction supervision. QEC is responsible for technical aspects of the project including hydrologic analysis, maps, construction engineering drawings, preparation of the Water Management Plan, verifying construction elevations and calibration of the gates.

MAS Qualifications: MAS has considerable experience implementing marsh restoration and enhancement projects such as this. In the last ten years MAS has completed four marsh restoration and/or enhancement projects similar to this project:

1. **REDWOOD HIGH SCHOOL MARSH ENHANCEMENT PROJECT** - In 1986, grants from the SCC and the Marin Community Foundation enabled MAS to develop and implement a plan to enhance this 12 acre diked salt marsh which is located at Redwood High School and is owned by the School District. The project deepened and widened channels in the marsh to improve water circulation and fish habitat, constructed a tide gate to allow improved water management in the marsh, removed invasive non-native vegetation, planted native plants on the upland adjacent to the marsh, constructed a low fence around the upland to discourage people and dogs from entering the habitat, and removed invasive plants. The fifth and final year of the monitoring is 1997. Additional excavation of existing and new channels was performed in 1995 to avoid damage to the marsh from mosquito abatement work.
2. **CORTE MADERA ECOLOGICAL RESERVE ENHANCEMENT/RESTORATION PROJECT** - This project involved restoring tidal action to one acre of filled land and creating a refuge habitat island for endangered Clapper Rails and for Black Rails, a candidate species at the Corte Madera Ecological Reserve. The Reserve is owned by the California Department of Fish and Game. ACL fines levied against two local jurisdictions by the RWQCB for sewage spills funded implementation of this project. Construction was completed in 1990. A five year monitoring requirement has been completed which found the site to be progressing satisfactorily. Marsh vegetation recolonized within 6 months, with cordgrass colonizing in the fifth year after construction.
3. **GALLINAS CREEK RESTORATION (in 3 Phases)** - This project also was implemented with ACL fines for sewage spills in the San Rafael. MAS obtained a grant of \$9,000 from the SCC to develop a restoration /enhancement plan for the entire site. The site is owned by the State Lands Commission and was leased by the Department of Fish and Game for the purpose of allowing this project to be implemented. Phase 1 was completed in 1992, Phase 2 was also funded with ACL funds in 1993, and the third and final phase was completed in January 1997 with funding from the Marin Community Foundation, US Fish and Wildlife Service and the

Environmental Protection Agency. Over three acres of filled land were returned to tidal action

4. MILL VALLEY RESTORATION PROJECT - ACL fines for sewage spills in Mill Valley also funded this project on a site owned by the Marin County Open Space District in Richardson Bay. Part of an old levee and a collapsed culvert were removed to restore an area of tidal marsh, isolate a section of levee for a high tide refuge for shorebirds, and to improve circulation to the adjacent tidal marsh. The project was completed in August 1992.

Barbara Salzman, who has managed these projects, has won many awards for environmental activities including the Save the Bay Founders Award, the Marin Conservation League's Marin Green Award, and the first Environmentalist of the year award from the Marin Environmental Alliance. Ms Salzman has been invited and has participated in U.S. Environmental Protection Agency and National Audubon workshops and conferences on watershed and marsh protection and restoration.

MAS has received grants to implement the various restoration projects from the State Coastal Conservancy, Marin Community Foundation, US Fish and Wildlife Service and the US Environmental Protection Agency. In addition, it has received Administrative Civil Liability funds that have enabled many acres to be restored to marsh through MAS efforts. MAS has fulfilled all conditions for the grants and many successful projects have been the result.

QEC Qualifications: QEC is an environmental and water resources engineering and planning firm providing government and private industry with consulting services in all phases of hydrology, water resources and watershed investigations. The firm was founded in 1982 and is headquartered in R\Point Richmond, CA.

One of QEC's primary areas of technical specialization is surface water hydrology, including river and bay hydraulics, watershed management, erosion control and water quality management. The firm is also known for its technical expertise in wetlands hydrology for restoration and enhancement planning. The firm provides complete services in wetland and creek restoration and enhancement, from initial concept plans and feasibility studies through final design drawings and supervision of implementation and construction. The firm's principals and senior staff include experienced civil and geotechnical engineers, hydrologists and environmental scientists with extensive experience in a wide range of hydrological and biological environments and kinds of projects. These have ranged from field investigations, resource inventories and hydrologic and water quality monitoring to sophisticated watershed runoff modeling and river hydraulics, which evaluate problems of bank erosion and sedimentation and test various stabilization and enhancement approaches. Restoration and enhancement plans completed by QEC include Petaluma River Plans in the City of Petaluma, Napa River, Lower Adobe Creek and Lynch Cree, in Petaluma, at the City of Hercules

on San Pablo Bay, a large project along the Hayward shoreline at Coyote Hills Regional Park, Sanchez Creek Lagoon on the Peninsula, and the Leslie Salt Ponds near Union City and Hayward. A number of these projects have been constructed based on plans and specifications prepared by QEC.

The project team members possess outstanding technical expertise and experience, covering all essential disciplines pertinent to the project. Mr. Jeffrey Peters, Senior Wetland Scientist/Hydrologist will assume overall management responsibility for QEC's Scope of Work. He will be joined by QEC's staff hydrologist Amy Luers, Restoration Specialist Margaret Henderson, and by consulting biologist and enhancement specialist Dr. Sam McGinnis. Norman Hantzsche, P.E., will provide quality control review and internal consultation. The senior staff and principals of QEC have over 20 years of experience in environmental restoration and management, including riparian and tidal marsh restoration.

Dr. Sam McGinnis, Professor, Hayward State University and consulting wildlife and fisheries, will also provide important input to the development of the management plan and any re As an ecologist specializing in the aquatic terrestrial wildlife and plants of the greater San Francisco Bay Area, Dr. McGinnis will assess habitat types and conditions at the study area, and address options for management. His major consulting activities in recent years have been centered on endangered and threatened plant and animal species. He is author of a popular book on freshwater fisheries of California. The majority of his recent work has been conducted for government agencies such as the I.S. Fish and Wildlife Service, the California Department of Fish and Game, the California Department of Transportation, the California Department of Parks and Recreation, and the planning departments of San Mateo, Alameda, and Contra Costa Counties. Dr. McGinnis has worked with QEC on enhancement plans for the Petaluma River, Rush Creek Marsh, Adobe Creek, and Coyote Hills.

VI. Compliance with Standard Terms and Conditions

Contract Items #8 and 12 for QEC are enclosed.

Item #8 is attached for MAS, however, it must be noted that MAS has no paid staff so we question the applicability of this requirement.

The terms and conditions specified in the 1997 Category III Ecosystem Restoration Projects and Programs RFP are acceptable and can be complied with.

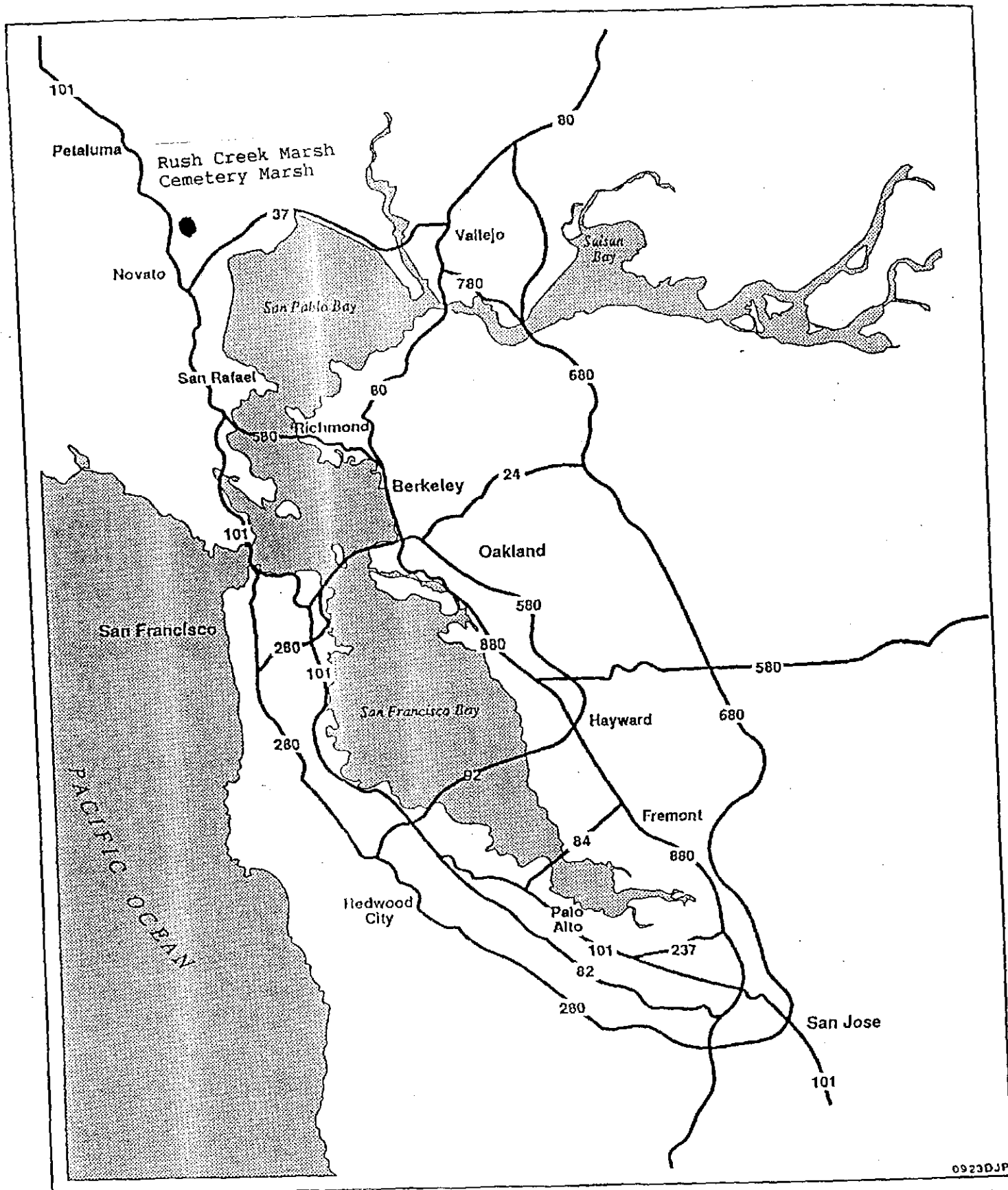
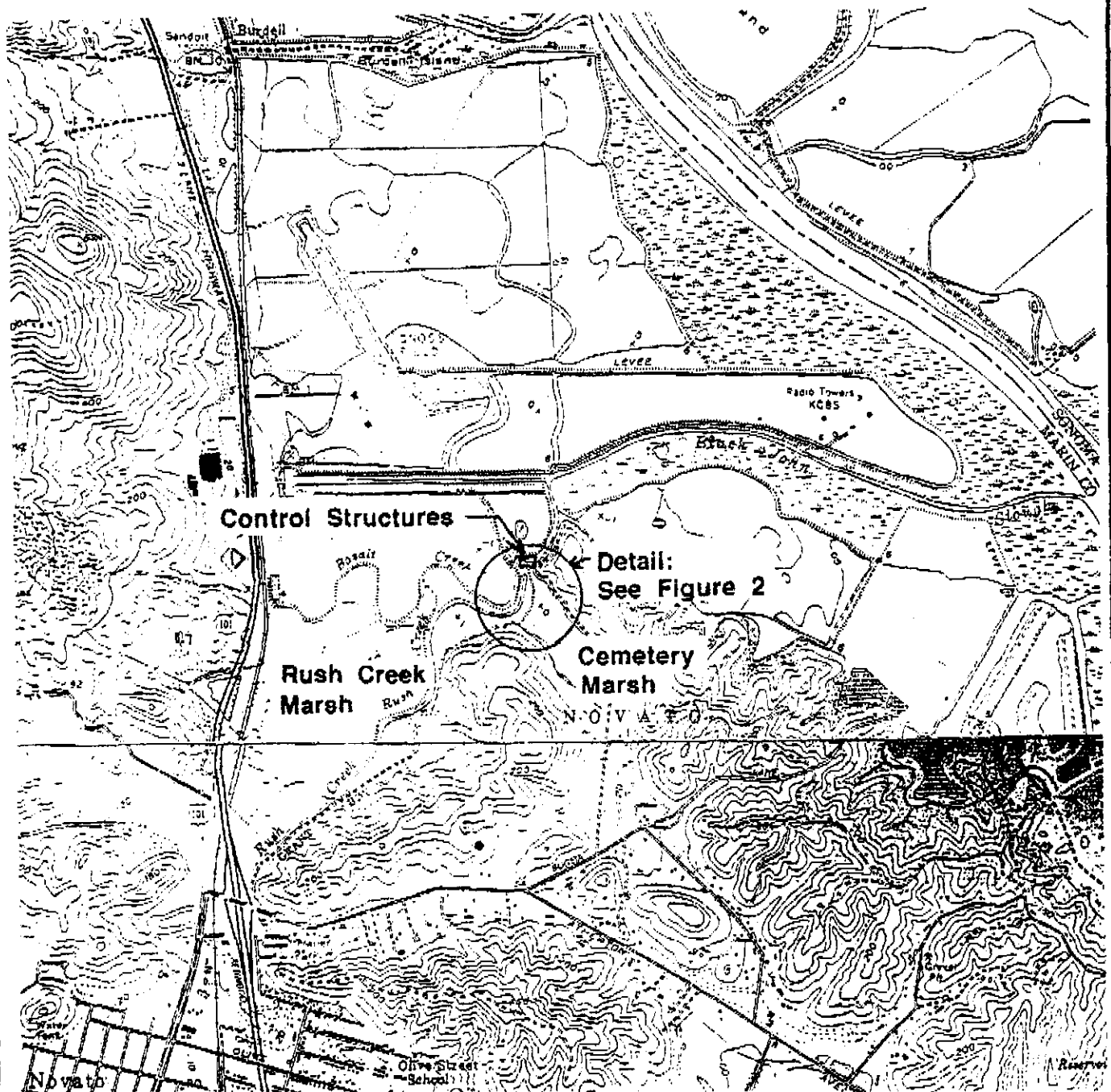


Figure 1. REGIONAL MAP



1-003205

1-003205



QUESTA ENGINEERING CORPORATION
1220 BRICKYARD COVE ROAD
PT. RICHMOND, CA 94807

Job No:

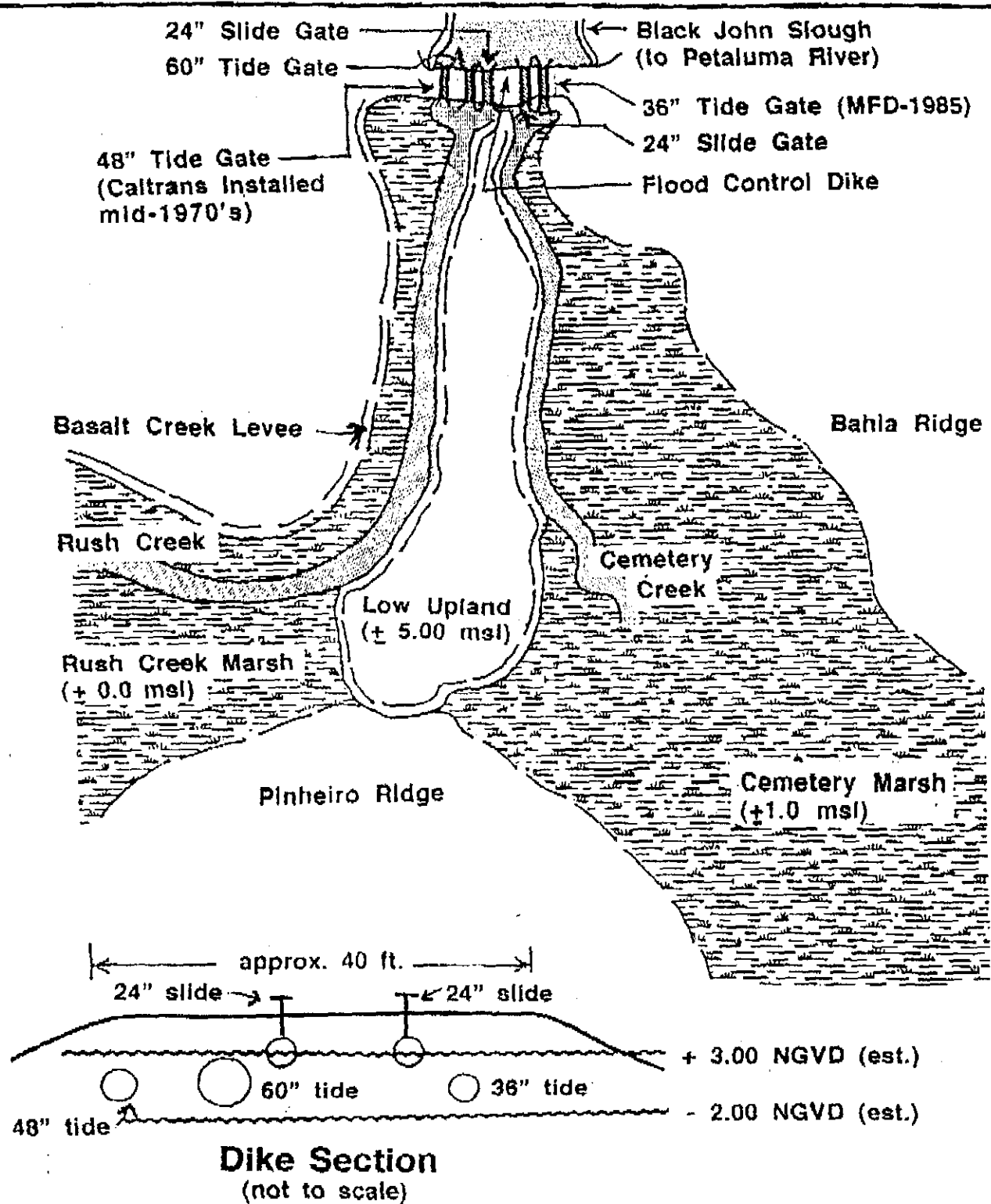
Appr:

Date:

Location Map

FIGURE

1



QUESTA ENGINEERING CORPORATION
1220 BRICKYARD COVE ROAD
PT. RICHMOND, CA 94807

Proposed Tide Gate Conversion

FIGURE

2

Job No:

Appr:

Date:

Combination **DRAINAGE & CANAL GATE**

The Waterman Model FC-10 Combination Drainage and Canal Gate combines our Models F-10 Drainage Gate and C-10 Canal Gate in one convenient unit. When the unit is closed, the flap functions as an automatic drainage gate, permitting outflow and stopping backflow. The gate can be raised with the handwheel or other suitable lift to permit backflow when desired.

This gate can be installed in locations suitable for the Model F-10 and C-10 Gates, and has the same operating characteristics and limitations.

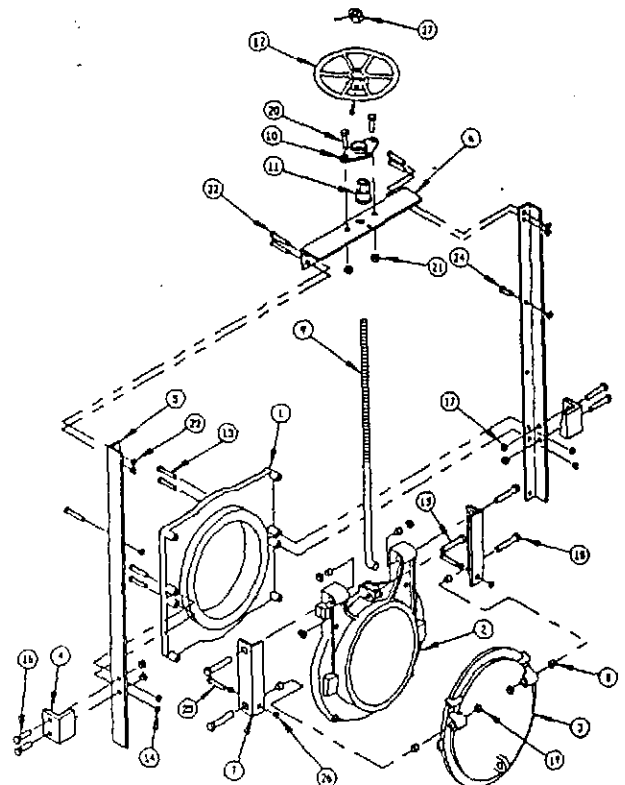
The gate is normally furnished with a self contained frame and handwheel lift. Special short frames with optional lifts and extensions are available as well as the standard extras used on our F-10 and C-10 Gates, such as stainless rails, bronze links, bolts and bushings, etc.

Total ASTM galvanizing or galvanized steel parts can be furnished at extra cost when required. See price lists for sizes available and weights. See specification page for dimensions.

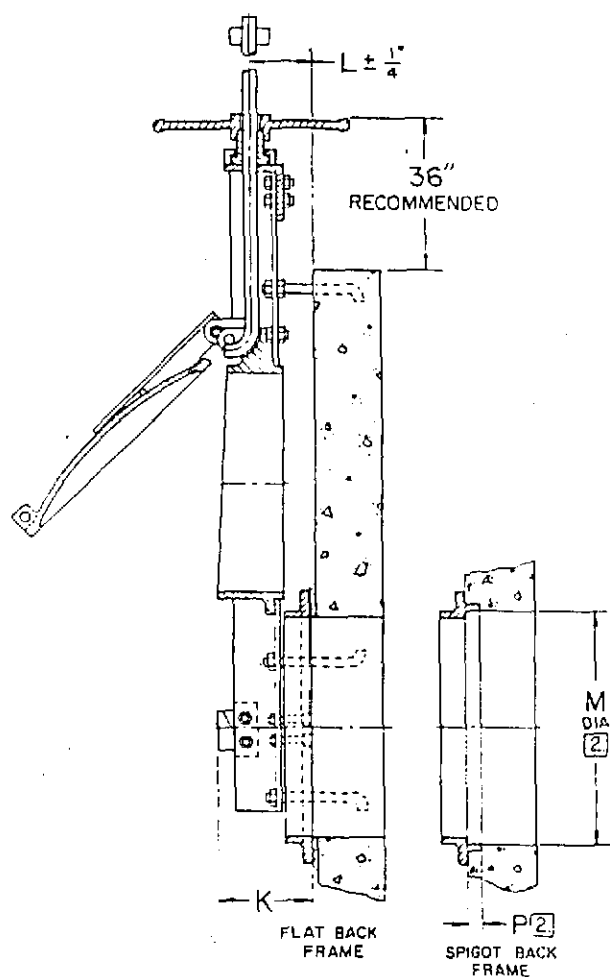
MODEL
FC-10



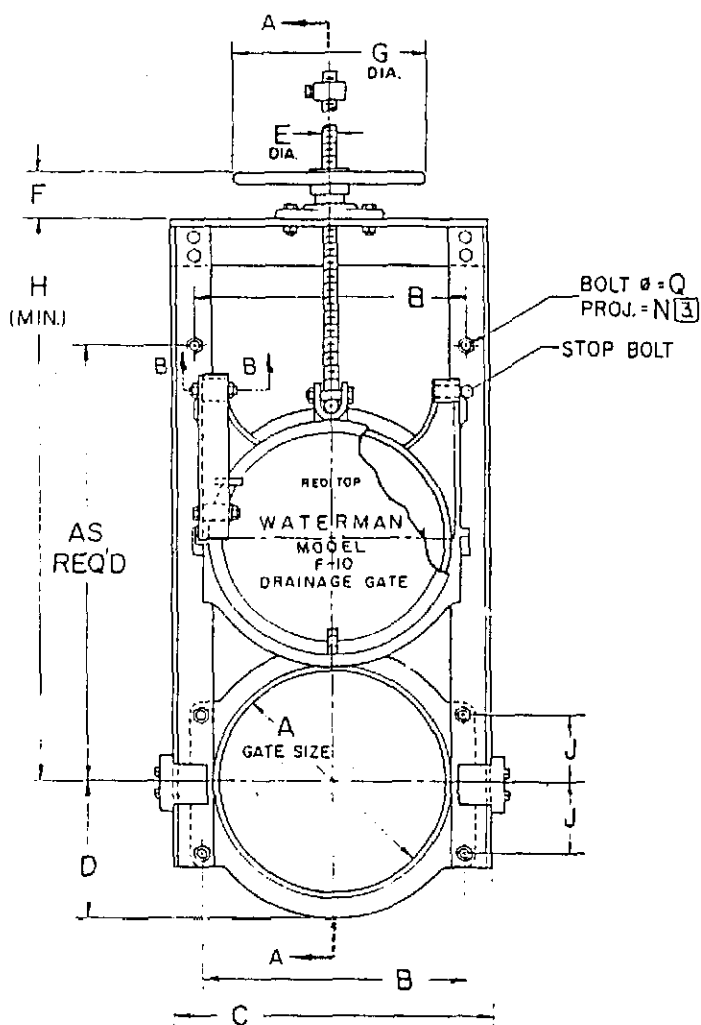
PARTS LIST					
No.	Name	Qty.	No.	Name	Qty.
1	FRAME	1	15	STEM BOLT & NUT	1
2	SLIDE COVER	1	16	WEDGE BOLT	4
3	FLAP COVER	1	17	WEDGE NUT	4
4	WEDGE (R&L)	2	18	HINGE BOLT	4
5	GUIDE RAIL (R&L)	2	19	HINGE NUT	4
6	HEAD RAIL	1	20	COLLAR BOLT	2
7	HINGE LINK	2	21	COLLAR NUT	2
8	BUSHING	4	22	RAIL BOLT	4
9	STEM	1	23	RAIL NUT	4
10	LIFT COLLAR	1	24	STOP BOLT/NUT	2
11	LIFT NUT	1	25	LINK SET SCREW	2
12	HANDWHEEL	1	26	ADJUSTING NUT	4
13	FRAME BOLT	4	27	LIMIT NUT W/SET SCREW (OPTIONAL)	
14	FRAME NUT	4			



Waterman INDUSTRIES, INC.



SECTION A-A



GATE DIMENSIONS IN INCHES

	16	18	24	30	36	42	48	60
A	16	18	24	30	36	42	48	60
B	18 3/4	21	27 1/4	33 3/4	39 3/4	45 3/4	51 3/4	65
C	20 3/4	23	29 1/2	36	42	48	55 1/2	68
D	9 3/4	10 1/2	13 1/4	17 3/8	21	23 3/8	26 3/4	33 1/2
E	7/8	1	1 1/8	1 1/2	1 1/2	1 1/2	1 1/2	2
F	2 7/8	3 3/8	3 3/8	4	4	5	6	6
G	10	12	15	18	18	18	24	30
H	36	40	52	69	78	91	101	113
J	5 1/2	6	8	10	12	14	16	20
K	10	10 1/2	11 1/2	11	14	14 1/4	14 1/2	17
L	3 1/4	4 1/4	4 1/8	4 1/2	5 3/8	6	6 3/8	7 3/8
M [2]	17	19	25	31 13/16	37	43	49 9/16	61 1/8
N	4 1/2	4 1/2	4 1/2	6	6	6	7	7
P [2]	2 1/4	2 1/4	2 1/4	2 1/2	2 1/2	2 1/2	2 7/8	3 1/4
Q	3/8	3/8	3/8	3/4	3/4	3/4	3/4	1

NOTES:

1. TYPE 2 LUBRICATED BALL BEARING LIFT USED ON 48" AND 60" GATES.
- [2] APPLIES TO SPIGOT BACK GATE ONLY. OPTIONAL SPIGOTS AVAILABLE.
- [3] ADD GROUT PAD THICKNESS TO ANCHOR BOLT PROJECTION.

Waterman INDUSTRIES, INC.

MODEL	FC-10f & FC-10sb COMBINATION DRAINAGE & CANAL GATES	
SCALE	CATALOG DWG. NO.	REVISION NO.
NONE	D-28	

NOTE: FOR PRELIMINARY DESIGN PURPOSES ONLY.
DO NOT USE FOR INSTALLATION
UNLESS PART OF CERTIFIED & APPROVED SUBMITTAL

Typical Specifications

FC-10 Combination Drainage and Canal Gate

General

The gates shall be designed to allow free outflow and prevent back flow, and additionally allow back flow when the slide cover-flap assembly is raised out of the waterway.

Frame Ring and Cover Slide

The frame ring and cover slide shall be cast iron with machined seating faces. A cast iron flap cover shall be domed construction and have machined seating faces, or have a resilient rubber seal permanently bonded in a groove and be flush with the surrounding cast iron seat face. The flap cover shall be attached to the cover slide in such a manner as to allow full opening of the cover and prevent jamming of the cover in the open waterway. Flap seat shall be inclined from the vertical a minimum of $2\frac{1}{2}^\circ$. Flap cover hinge linkage shall be galvanized structural steel. Pivot points in flap cover and cover slide shall be bronze bushed. Hinge bolts shall be stainless steel. Assembly hardware and structural steel shall be galvanized. There shall be one adjustable cast iron wedge per side located on the horizontal centerline attached to the structural guides with a minimum of two bolts per wedge which will provide a practical degree of watertightness between the frame ring and cover slide seating face.

Stem and Operator

A solid round lifting stem shall be provided, supported so that the slenderness ratio will not exceed 200 ($L/r \approx 200$) and shall be operated by a lifting device mounted on the headrail or other separate structure. The handwheel or crank type lift will be sized to allow operation of the gate with a 40 pound pull under the maximum operating head. The lift nut shall be bronze, threaded to match the stem. Threads shall be of the single lead, stub acme type.

The combination drainage and canal gates shall be Waterman Model FC-10 or approved equal.

Material

Frame Ring, Cover Slide, Flap Cover, Handwheel

Cast Iron — ASTM A-126, Class B

Optional — Resilient Seat in Cover Slide — Neoprene Rubber ASTM D-2000, BC 610/615

Rails, Links and Yoke

Structural Steel — ASTM A-36 — Galvanized per ASTM A-123

Optional — Stainless steel — ASTM A-276, Type 304

Stem

Leaded Cold Rolled Steel — ASTM A-108, Type 12L14, or

Optional — Stainless steel — ASTM A-276, Type 304

Lift Nut

Composition Bronze — ASTM B-584, Alloy 844

Optional Manganese Bronze — ASTM B-584, Alloy 865

Assembly Hardware and Fasteners

Steel — ASTM A-307 — Galvanized per ASTM A-153 & ASTM A-123

Optional — Stainless steel — ASTM A-276, Type 304

Paint

Castings will be coated with the manufacturer's standard paint (or special paint).

NONDISCRIMINATION COMPLIANCE STATEMENT

Questa Engineering Corporation

COMPANY NAME

1220 Brickyard Cove Rd.

Pt Richmond, Calif.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California

Jeffrey H. Peters

OFFICIAL'S NAME

7/22/97

DATE EXECUTED

EXECUTED IN THE COUNTY OF

Contra Costa

PROSPECTIVE CONTRACTOR'S SIGNATURE

Jeffrey H. Peters

PROSPECTIVE CONTRACTOR'S TITLE

Principal

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Questa Engineering Corporation

Agreement No. _____

Exhibit _____

STANDARD CLAUSES --

SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER

NOTICE TO ALL BIDDERS:

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

____ Yes*

☒ No

*Phesta Engineering Corporation
1220 Brickyard Cove Rd
Pt. Richmond, Calif*

*Attach a copy of your certification approval letter.

74807

P.S

7-23-1997 10:35PM FROM

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

Cooper Crane & Rigging, Inc

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

B. K. Cooper

DATE EXECUTED

7.25.97

EXECUTED IN THE COUNTY OF

PROSPECTIVE CONTRACTOR'S SIGNATURE

B. K. Cooper

Marin

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Cooper Crane & Rigging, Inc

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)

)ss

COUNTY OF Marin)

BR Coe _____, being first duly sworn, deposes and
(name)

says that he or she is Pres _____ of
(position title)

Cooper Crane & Rigging, Inc.
(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: 7-25-97 By BR Coe
(person signing for bidder)

Subscribed and sworn to before me on

(Notary Public)

(Notarial Seal)

Jul. 28. 1997

8:24AM

COOPER CRANE & RIGGIN

No. 5166 P. 1/2



State of California
CONTRACTORS STATE LICENSE BOARD
ACTIVE LICENSE



License Number

500763

Entity

CORP

Business Name

COOPER CRANE & RIGGING INC

Classification

A

Expiration Date

10/31/1998



PROOF OF CONTRACTORS LICENSE
COOPER CRANE AND RIGGING

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME

Marin Audubon Society

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California

OFFICIAL'S NAME

Barbara Sakman

DATE EXECUTED

7/26/97

EXECUTED IN THE COUNTY OF

Marin

PROSPECTIVE CONTRACTOR'S SIGNATURE

[Signature]

PROSPECTIVE CONTRACTOR'S TITLE

Marin Audubon Society

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Agreement No. _____

Exhibit _____

**STANDARD CLAUSES --
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER****NOTICE TO ALL BIDDERS:**

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

____ Yes*

☒ No

*for Maria Adelino
Garcia*

*Attach a copy of your certification approval letter.



Harry J. Moore
Fifth District Supervisor
Chair, Board of Supervisors
County of Marin

July 28, 1997

Kate Hansel
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Re: Marin Audubon Society Category III Proposal for Marsh Enhancement at Rush Creek
and Cemetery Marshes Burdell Island, and Redwood Landfill Marsh

Dear Ms. Hansel:

As Supervisor for the District in which these marsh restoration and enhancement projects would occur, I am pleased to have the opportunity to express my support for these worthy proposals all of which are located in the watershed of the Petaluma River.

- Rush Creek Marsh and Cemetery Marsh Enhancement Project: The County owns the Cemetery Marsh and is helping to fund installation of new gates. The requested CALFED funding for removal of sediment in the marsh channels would greatly benefit circulation and water quality, and the overall management of these marshes.
- Burdell Island: Marin County has been interested and involved in attempts to protect this site for many years. An effort to purchase it fell through last year. We welcome the help of a CALFED grant to enable protection and restoration of this important site.
- Redwood Landfill Marsh: The opportunity to protect and restore such significant acreage of tidal marsh at a reasonable cost is unique. Restoration of this marsh would greatly benefit fish and wildlife that depend on the Petaluma River and the Petaluma Marsh.

The Marin Audubon Society is experienced with restoring marshes and has been a partner with the County in enhancing and restoring other marshes.

I strongly recommend your favorable consideration of these proposals.

Sincerely,


Harry J. Moore
Chair of the Board

Suite 315 • 3501 Civic Center Dr. • San Rafael, California 94903-4193 • Telephone (415)499-7331 • FAX(415)499-3645

E-Mail: hmoore@midas.co.marin.ca.us

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I-003218

SAN FRANCISCO BAY JOINT VENTURE

mailing address: Coastal Conservancy, 1330 Broadway, Suite 1100, Oakland, CA 94612
phone: 510-286-6767 fax: 510-286-0470

July 24, 1997

MANAGEMENT BOARD:

Bay Area Audubon Council
Bay Area Open Space Council
Bay Conservation & Development Commission
Bay Planning Coalition
Bay Area Regional Watershed Network
California Department of Fish and Game
Citizen's Committee to Complete the Refuge
Coastal Conservancy
Ducks Unlimited
National Audubon Society
P G & E
Regional Water Quality Control Board, San Francisco Bay Region
Save San Francisco Bay Association
Sierra Club
U.S. Fish & Wildlife Service
Wildlife Conservation Board

Kate Hansel
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

RE: Category III Proposals from Marin Audubon Society:
Burdell Island, Rush Creek/Cemetery Marsh, Redwood
Landfill Marsh, Bahia

Dear Kate:

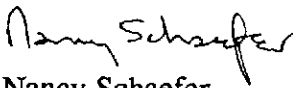
I am writing on behalf of the member organizations of the San Francisco Bay Joint Venture in support of the Marin Audubon Society's Category III proposals. Endorsement of these wetlands restoration projects was voted unanimously at the Joint Venture's Management Board meeting on July 10.

All of these projects are located in the Petaluma River watershed and their completion will greatly benefit fish and wildlife in the region by restoring both tidal and seasonal wetlands. The Petaluma River is an important watershed to several CALFED priority species including the delta smelt, Sacramento splittail and chinook salmon.

The Marin Audubon Society has a strong track record for completing good wetlands restoration projects and is a solid partner in the San Francisco Bay Joint Venture.

We urge you to consider these proposals favorably.

Sincerely,


Nancy Schaefer
Coordinator

Cc: SFBJV Management Board



Trout Unlimited of California

July, 23, 1997

Mr. Lester Snow
Executive Director
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, Cal. 95814

Re:--Burdell Island Acquisition and Restoration--Rush Creek/Cemetery Marsh
Enhancement--Redwood Landfill Marsh Restoration Projects.


Dear Mr. Snow:

Trout Unlimited, basically a grassroots organization, has a special interest in the restoration of California's salmon and steelhead trout fishery. Many of our 8000 California members are involved in "hands on" restoration projects throughout the state.

We have had the opportunity to review the excellent projects descriptions and was impressed with the ecosystem and fishery benefits. Our members are very supportive of the projects. It is obvious that the projects will greatly improve the water quality in the San Pablo and San Francisco Bays and the adjacent Wildlife Refuge. This area is well recognized as a nursery area for the outgoing Sacramento and San Joaquin River juvenile salmon and steelhead. The improved water quality will greatly enhance their survival on their journey to the ocean.

As America's leading coldwater fisheries conservation organization, we strongly recommend your approval of the projects and will be looking forward to your accomplishing your mission to double the natural spawning anadromous fishery of the Central Valley.

Respectfully submitted


Stan Griffin
Regional Vice-President
Southwest Region

5200 Huntington Ave. #300, Richmond, CA 94804-5416 • Phone 510-528-5390 • Fax 510-525-3664

Protecting and Improving Your Fishing Future